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ORIGINAL COMMUNICATIONS.

ARTICLE I.—Report of Surgical Cases, treated at St. James' Hospital, Chicago, during the months of July and August.
By Dr. GEO. K. AMERMAN, one of the attending Surgeons.

CASE I.—COMPOUND FRACTURE OF THE LEG.

Michael Forrester, aged 23, born in Ireland, been in this country four years, by occupation a laborer, of moderately temperate habits, and general good health. He was admitted into the hospital July 10th. On the morning of the 10th, while he was engaged at his work on the street, a part of an old building undergoing repairs, fell some twenty feet, and struck him a little below the middle of the left leg. The blow was a severe one. The soft parts were extensively contused, both bones broken, and the upper end of the lower fragment of the tibia projected about an inch, through a small valvular wound of the parts overlying it, in such a way as to force the integument before it, and prevent an easy replacement. The hemorrhage was slight, though some of the branches of the anterior tibial artery were evidently lacerated. The fracture was reduced, the limb placed in a fracture box, and cold water dressings constantly applied. An anodyne given at night, to procure sleep. The

next morning the inflammation was very moderate, with scarcely any pain or constitutional disturbance.

July 27th.—External wound entirely healed. No attempt at unions. Side splints substituted for the fracture box, and patient allowed to be up about the ward.

August 20th.—No union.

Sept. 1st.—Tibia just beginning to unite, though freely moved, and unable to bear the weight of the foot.

Sept. 10th.—Union more firm, but very imperfect.

Sept. 16th.—This patient is still an inmate of the Hospital. He has been under our charge nearly two and a half months, and promises to remain, at least, another half month. The slow process of union we can trace to no cause, general or local.

CASE II.—SEVERE RAILROAD INJURY OF THE LEG.—AMPUTATION.—DEATH.

Ole Johnson, aged 45, born in Norway, a laborer, of intemperate habits, but general health, good. He was admitted into the Hospital on Monday, July 27th, late in the afternoon. At the time of his admission he was emerging from a state of deep intoxication. About two hours previous to his admission, as he was crossing the railroad track, a train of heavily loaded cars ran over or against him, in such a way as to fracture both bones of the leg, the fibula in several places, open extensively the ankle joint, lacerate all the soft parts on the outside of the lower half of the leg, and cut off, apparently, the supply of blood to the foot, no pulsation could be felt in either the anterior or posterior tibial arteries. The foot was cold, and toes blanched. He complained of no pain, except of the thigh of the opposite side which was badly contused. The right shoulder was, also, severely bruised. No injury about the head or chest perceived on admission. The wound of the soft parts of the leg, and about the ankle, which must have, necessarily from its extent and position, lacerated the posterior tibial artery, still bled very sparingly. Drs. Miller, Duck and Powel were consulted, and amputation of the leg, just below the knee, was thought to offer him his only chance of a recovery. The age of the patient, his intemperate habits, the extent of the injury, its involving so much of the ankle joint, and in all probability cut-

ting off entirely all supply of blood to the foot, were the principal arguments in favor of the operation. The patient readily assented, and 8 o'clock, P. M., was the time fixed for operating.

July 27th, 8 o'clock, P. M.—Reaction fully established. Pulse good. Considerable pain in the leg and right shoulder. The patient was anaesthised by a mixture of Chloroform and Ether, (Chloroform 1 part, Ether 5,) and kept so throughout the operation. Very small quantity of blood lost, pulse remained good. Dressed stump with sutures and adhesive straps over it, lint, kept wet in cold water. Gave a full anodyne to procure sleep.

July 28th.—Patient been vomiting almost incessantly all night. Pulse accelerated and weakened; surface cool and moist; stump in good condition. No pain. Nausea and vomiting continues.

Ordered Tincture Nux Vomica, five drops, every hour for the vomiting, light nourishing diet during the day, cold water dressings to the stump, and an anodyne at night.

July 29th.—Vomiting stopped after second dose of Nux Vomica. Feels well; no pain in stump; slept about six hours last night; stump dressed for the first time; looking well; a piece of lint, covering the end of the stump, and bandage were applied, the lint having been first wet in cold water. The constant application of water discontinued.

July 31st.—Everything favorable; dressed the stump, and ordered Quinine in small doses.

August 2d.—General condition good. Stump in good condition; dressed daily since last note, and wound united throughout nearly its whole extent; discharge healthy. Observed today, for the first, a soft, boggy swelling about the right elbow joint, also, some pain on moving the joint. Pulse good.

Ordered more generous diet, and increased the Quinine to 5 grains *ter die*.

August 5th.—Pulse 140, almost imperceptible; skin cool; countenance haggard; elbow remains swollen. No pain. Discharge from stump scanty and offensive.

Ordered Brandy, Beef Tea and Quinine; two former, ad. lib., the latter, 5 grs. every three hours.

August 7th.—Somewhat better; swelling at elbow nearly subsided; pulse 100; skin warm and moist; countenance more calm. Stump still secretes a small amount and unhealthy. Continue Treatment.

August 8th.—Called to my patient early this morning, and found him much worse. Pulse 140; very weak; resp. 60; skin cool; *stump dry*; severe pain in chest; no cough; no expectoration.

Ordered Dry Cups to chest, fol. by blister. Stimulants and Quinine as before. He grew rapidly worse and died at 6 o'clock, P. M., from exhaustion and dyspnoea.

The cause of death in the above case, I believe to have been pyemia. The operation was performed July 27th, and every thing promised well until August 2d—six days—when we observed a different swelling about the elbow joint, some pain, some general uneasiness, and anorexia. These were the first tokens of trouble. Two days afterwards, August 5th, we find our patient much worse; his countenance haggard, pulse rapid and weak, skin cool and moist, elbow swollen, discharge from the wound scanty and offensive. These symptoms are relieved for a time, by stimulants and Quinine; but unfortunately, three days afterwards, chest symptoms supervene, and the patient speedily succumbs.

Pyemia is one of the most fatal consequences that can happen after surgical operations. Its fatality and its frequency, make it of the first importance to the surgeon, and we propose to study it more fully at some future time.

CASE III.—SIMPLE FRACTURE OF TIBIA.

Michael Leahy, aged 30, born in Ireland, laborer, temperate habits, and good constitution. Admitted into the Hospital August 1st. He received his injury about two hours previous to his admission, by the falling of a heavy timber which he was helping remove. It struck him just above the Int. Malleolus, and produced a transverse fracture of the lower end of the Tibia. The soft parts were very slightly contused. The limb was placed in a fracture box, and cold water dressings used for six days. Side splints were then applied and left for twenty-

two days, at the end of which time, union was firm and the patient discharged, cured.

CASE IV.—SEVERAL SEVERE SCALP WOUNDS WITH FRACTURE OF THE SCULL.

Peter Higgins, aged 27, born in Ireland, laborer, of intemperate habits, but general health good. On Saturday night, Sept. 12th, he was attacked and severely beaten by two ruffians, whose intent, it is supposed, was to murder him. The first blow was given by a large heavy club, which knocked him down. When down, they struck him a number of times, but, as he was insensible, it is impossible to ascertain how many. He was found in this condition by a policeman, and taken to the Station House. Two physicians were summoned and carefully dressed his wounds. The next day, Thursday, Sept. 13th, he was sent to the Hospital and placed in my charge. There were six scalp wounds, principally on the right side. The largest was about six inches in length, and extended down to the bone. Another crossed it at right angles. Two were over the mastoid process of the temporal bone, and two in front of the ear. I did not examine for fracture of the scull, as the wounds had been dressed previous to admission. He was also bruised about the face and neck. The physician who dressed his wounds told me his scull was broken. There were no symptoms of compression. Cold water dressings were kept constantly applied, and the next morning he was every way comfortable.

Ordered a mild cathartic, and continued the cold water dressings.

Sept. 19th.—Patient has been under our charge one week. There has not been a single unfavorable or suspicious symptom. The wounds are all well, with the exception of the longest. Appetite good. Sleeps well at night, and feels as well as ever. He leaves the Hospital for Kenosha, his place of residence, to-day.

We would be unwilling to say to the above patient that he stands no chance of future trouble. It is well known that secondary accidents not unfrequently occur a long time after injuries of the scalp, and no one could be certain of an immunity, even though he had passed a month without an unfavorable sign.

ARTICLE II.—*Valerianate of Ammonia in the Treatment of Neuralgia.* By W. HAY, M. D., Chicago.**EXPERIMENT NO. 1.**

June 12th, 1857.—Patient, a lady laboring under incipient tuberculosis and general anaemia, was seized with severe neuralgic pains in the right temple, extending over the entire half of the head and face. Local applications of Chloroform were made, which mitigated the pains considerably, but did not relieve them entirely until after the lapse of five or six hours.

June 13, 14, 15, 16, 17, 18.—The pain still persistent.

June 19th.—Directed the following:

R.

Tinct. Valerian Ammoniate,	3vj
Tinct. Opii,	3ij

M

One teaspoonful to be taken every three hours, local applications to be continued. This treatment was persisted in for several days with no perceptible effect, beyond the production of great irritability of stomach with distressing nausea and vomiting; it was therefore discontinued, and the following was directed:

R.

Tinct. Aconite.

To be applied externally, and given internally in doses of five drops every two hours. This was continued twenty-four hours without producing any benefit. She had now become so intense, the paroxysms being greatly lengthened, and the intermissions proportionally shortened, as to necessitate a return to the Chloroform applications, together with its exhibition by inhalation. Thinking that some local cause might be at the bottom of the difficulty, had the patient removed to a much higher and more airy residence, on the 3d of July.

July 4th.—Pain continuing with very slight intermissions. Directed 3j Ferri. Sub. Carb. Praecip. to be taken every four hours, alternated with five grs. Bismuth Sub Nitrate. The nausea was by this means relieved, the pain ameliorated for two or three hours only, returning after that interval with increased violence.

July 6th. — Directed ten drops Sol. Potass. Arsenic, together with a scruple of Tinct. Cannabis. Indic. to be given every six hours, which was attended with no benefit whatever.

July 7th. — Patient suffering acutely, to take the following:

R.

Ammoniae Valerianta (deliquescent)	3j
Aqua.	3j

Dose, one teaspoonfull. One dose was taken at 7 P. M., and was followed by a marked decrease of pain, increased force and diminished frequency of pulse. On the administration of the second dose at ten o'clock, P. M., the patient sunk into a quiet sleep, in which she continued until morning.

July 8th. — To continue the treatment, as on last night, pain much diminished, but not entirely gone.

July 9th. — Continue treatment.

July 10th. — Continue treatment.

July 14th. — By this time the salt seemed to have lost its controlling power over the disease. The dose was doubled, but produced only distressing dyspnea, and head-ache. The pain was still persistent. The treatment was, therefore, abandoned, and the patient directed to take 3 ss. Ferri. Sub. Carb. Praecip. The first dose was followed by immediate and permanent relief from pain. This treatment was pursued for some days, as a precautionary measure, but the pain did not return.

My attention was first directed to the Valerianate of Ammonia in the treatment of Neuralgia, from reading the report of a case successfully treated with this salt, by Dr. Declat of Paris, contained in the last vol. of Ranking Half-Yearly Abstract. It would be proper to remark here, that an idiosyncracy of this patient contra indicating the use of any of the vegetable alkaloids, rendered it necessary to seek relief, in some agent out of the usual category of remedies. I would also state that the specimen of Valerianate of Ammonia used in this case, was of doubtful strength, having absorbed so much water as to be perfectly liquid.

EXPERIMENT NO. 2.

August 19th, 1857. — The same patient, as above, was attacked about midnight, with Neuralgia in the right side of

the head and face, as before, and also in the intercostal nerves of the same side. The pain was so severe as to obstruct respiration to a very serious extent, the functions of the right lung being already impaired by pre-existing disease. Such remedies as were at hand were used during the night, entirely in vain, temporary suspension of the pain being obtained by the inhalation of Chloroform.

August 20th.—Pain returned at noon after an interval of about twelve hours, and continued with great severity during the remainder of the day. Being desirous to test fully and fairly the powers of the Valerianate of Ammonia, I procured with some difficulty a small quantity in the crystalline state, and administered one grain of the salt in a teaspoonful of water, at 10 o'clock P. M., this was followed by almost immediate relief from pain, and, as in the former case, by increased force and diminished frequency of the pulse; in fifteen minutes the patient was asleep.

Relief in this case has been permanent.

ARTICLE III.—*Ligaturing one of the common Corotid Arteries, for the cure of Epilepsy.* By C. ANGELL, of Pittsburgh, Indiana.

Have we any known remedy for the cure of Epilepsy? Without attempting to explain the nature, cause or phenomena of this disease, I will present the result of two operations of tying the right common Corotid, for the cure of this disease.

The first operation was performed on the 2d day of July, 1857, on Wm. Brackus, of this place. He was 20 years of age, short, not over 5 feet in height, heavy set, large head, short neck, full habit, sanguine temperament, right arm and hand deformed, idiotic in most respects. Has been having fits 3 or 4 years, seldom at first, but gradually growing in frequency and severity. After having had a variety of remedies tried without any good result, I proposed tying one of the common Corotids, thinking that by permanently lessening the amount of blood passing to the brain that it might cure him. After having had 15 or 20 in the fore part of the day, being put under the influence of Chloroform, I placed a ligature on the right common

Corotid, about one inch below the bifurcation of the external and internal. The operation was performed without any difficulty.

The next day pulse 120, complains of difficulty in swallowing, talks with difficulty, complains of no pain, his mind about as it was before the operation, left side partially paralyzed.

Treatment: solution of Salts and Tar. Emetic, as a cathartic and sedative. They operate well, wound covered with oil silk, and kept constantly wet with ice water; gave nothing to eat but water gruel and rice water.

Without describing each particular day, I will say that he continued about as I have described him to-day, paralysis of the left arm and leg complete, still talks and swallows with difficulty, not much swelling about the wound and neck.

He remained in this condition until the night of the seventh day from the operation, when he died in a comatose condition. He never had any symptoms of fits after the operation.

An examination of the neck the next morning after he died, showed no signs of inflammation, the parts all looked healthy and natural. I removed a section of the artery two inches in length, above and below the ligature, coagulation was quite firm in artery. The family think he would have died as soon as he did, if he had not been operated upon. I do not think so.

The second operation was performed on the 8th of July, the same day on which the first one died. This was on J. Bostick, of Brookston. He is 40 years of age, naturally good constitution, full habit, sanguine temperament. Has had fits for seven years, but not so often or so hard, until the last three years; has them almost every day, so much so that he is incapacitated from doing any thing at all, his mind is also destroyed. He has been under treatment by a great many, both regular and irregular, all without benefiting him.

I performed the operation in the same way as in the other case. Soon came out from under the influence of the Chloroform, said he had complained of no pain, talked without any difficulty.

July 8th.—Says he feels well to-day, pulse 80, no unfavorable symptoms, swallows well, mind clear, talks well. I bled him

this morning very freely, and put him on tar. emt. and salts, as in the other case. He has continued to get along well, pulse never over 80. He would every few days wake up bewildered or scared, this being the only symptom of returning fits until the 30th. He had one on this day so hard as to deprive him of sensibility, and on the next day had one about the same. He says they came on him different from what they did before. Before this he would have no warning or premonitory symptoms of their approach; but each one of these times he felt a sensation of dizziness of some minutes' duration, long enough for him to go and lay down before they came on.

On the 17th of August he had a slight one, and on the 5th of September another, making in all four since the operation: it is now the 18th of September.

The ligature came away on the twenty-second day—the wound is all healed up. He is going about attending to his business. He says he feels better than he has done in three years.

His family, and those that are well acquainted with him, all say that they can see a marked change in him, in his actions, countenance, and more particularly in his mind.

What will be the result I cannot tell. He now has the appearance of being benefited; how long it will continue I cannot determine. Whether the bettering of his condition is owing to the operation, or to the treatment, I cannot say.

Any remarks on the above cases will be thankfully received.

ARTICLE IV.—*A Case of Paralysis.* By CHARLES BRACKETT, M. D., of Rochester, N. Y.

Having just read a case of paralysis in the July number of the *Western Lancet*, reported by Dr. McMeans, of Sandusky, Ohio, a case in my own practice came to my mind, which was of much interest to me at the time, but, as I kept no notes of the case, will report it from memory, assisted in dates by my day-book and ledger.

About January, 1848, Jas. Jenkins, aged about 50, consulted me for a difficulty about his left arm. This difficulty showed itself in a vermicular motion, continuous in the muscles of that arm, attended with slight numbness of the member. This ver-

micular or crawling motion of the muscles was incessant and continuous, and visible *plainly* through the skin of the left arm. It first was noticed some time before, after working at his trade (shoemaking) near an open door, the wind blowing uncomfortably cool through the crack made by the partially open door. From this time to the 28th Nov., 1849, the disease progressed slowly, affecting in turn the muscles of the left side, then attacking the right arm, affecting it, the pectoral muscles, anterior and posterior, the facial muscles, the abdominal muscles, then the muscles of the right thigh, leg and foot, then the muscles of the right side of the tongue, the pharynx, œsophagus, stomach and intestines, and lastly those of the heart, when death took place. Probably starvation ended his unhappy existence, as for a long time previously to his death no nourishment was taken by him. All muscles pertaining to digestion and the taking of food into the stomach having been totally paralyzed. Even the muscles of the lids and eyeballs partook of the paralysis, the muscles of the heart retaining longest their power. It is unnecessary to detail at length the treatment, as nothing affected him beneficially. Strychnine I tried for some time, only with this effect, that it affected him powerfully as a sudorific whenever given, and induced some spasm, always first of those muscles first affected by this sort of paralysis.

After he had been affected for some months he told me that some thirty-five years before, while engaged driving negroes South, he was bitten by a mad dog on the top of the head, the correctness of which was evidenced by a scar near the junction of the sagittal and lambdoidal sutures. To this bite he ascribed all his bad symptoms, and requested me to make autopsy to satisfy myself as to the extent, nature and consequences of the bite, so far as possible. He died, however, at his residence, eight miles from town, during my absence, so that an opportunity for a post-mortem was lost, and the details of an interesting case perished with him.

REEDSBURG, WIS., Sept. 17, 1857.

DR. N. S. DAVIS,—A case has occurred in my practice of so singular a nature, that I thought it might interest the readers of your Journal.

I was called the 18th of the present month to see a child that had just been born, which presented so singular an appearance that the midwife in attendance desired that a medical man should see it.

When I arrived at the house, I found the child had been born about half an hour previous, and upon examination, found that the child, a boy, was perfect every way excepting an entire want of development of the parieties of the abdomen. The chest was well developed, and the little fellow was crying lustily.

When born, there was nothing but the peritoneum to keep the viscera, the stomach, the liver, spleen and the intestines in their position; but this was soon afterwards ruptured by the child drawing up its knees, when all the viscera mentioned were exposed to sight. I turned the folds of the peritoneum aside, and found everything fully developed, save an entire want of muscular tissue from the inferior part of the chest to the pubes, and from spine to spine of the ilium. There was no umbilical cord, but the umbilical artery and vein were inverted in a thickened portion of the peritoneum.

The child had a passage of meconium while there, took food, and was apparently without pain, but died the next day, living about thirty hours from the time I saw it.

As to the cause of this strange phenomenon it would be folly to speculate. It might, however, be proper to state, that the mother is a healthy woman, with a family of eight children. Her husband died about four months ago, or about the fifth month of pregnancy, and during his sickness (measles) the entire family save herself were helpless with the same disease.

This condition of her family imposed a tax for two or three weeks more than her physical powers could bear, and added to the death of her husband, also being among entire strangers (they having just emigrated from Maine), was a source of mental anxiety which may possibly have had some connection with the immature condition of the child. But, as I before remarked, it is folly to speculate, and I merely give the facts for what they are worth.

Respectfully,

S. RAMSEY.

PROCEEDINGS OF MEDICAL SOCIETIES.

CHICAGO, JULY 7TH, 1857.

Cook County Medical Society met pursuant to notice, at the office of Dr. Chas. G. Smith.

Present—Drs. Cheeney, Wickersham, H. F. Smith, Wagner, Petersen, Schloetzer, Deniston, C. G. Smith, Davis, Amerman, Holmes and Bevan.

Under the head of proposals of new members, Dr. S. Faircloth was proposed by Drs. Wickersham and Bevan. Elected.

Dr. Wickersham then read a paper on a case of small pox and measles occurring simultaneously in the same patient. The case corroborates the statement of various observers, that the two diseases occurring together in the same patient, the measles first runs its course, the variolous disease being rendered latent or held in abeyance (although the prodromic symptoms may have been those of small pox) to proceed in development and desquamation after the rubeola has disappeared.

After the discussion of Dr. W.'s paper, Dr. Petersen had the floor, and read a portion of a paper commenced at the last meeting, on the Etiology, Symptoms and Prognosis of Hemorrhoids.

In the order of reports, Dr. N. S. Davis, Chairman of Com. on Prize Essays, presented a report and resolutions, which were accepted and adopted.

On motion, Drs. Davis, Fisher and Cheeney were appointed a committee to decide upon the merits of the essays offered, and award the prize.

A committee was then appointed, of which Dr. Schloetzer is chairman, and Drs. Chas. G. Smith and Amerman members, to report a subject at the next meeting on which the essays should be written.

Dr. Davis made a verbal report on the sanitary condition of the city: had observed some cholera morbus in children, one case of spasmodic cholera in an adult, since the commencement of hot weather; also the prevalence of diarrhoea of a remittent

character, discharges copious, with more than usual periodicity, yielding readily to anti-periodics, added to the usual treatment. From the early appearance of this tendency, he predicted the prevalence of much periodic disease in the latter part of summer and autumn. Also reported a few cases of disease in children : the main phenomena presented were great difficulty of breathing, pale skin, sunken look of the face and eyes, feeble pulse, and rapid superficial respiration. The medication was expectorant, alterative and anti-periodic.

Dr. Petersen reported some remittents among immigrants ; also typhoid diarrhoea ; a tonic, anti-periodic therapeutic was instituted.

Drs. Wickersham and Cheeney reported cases of diarrhoea and remittent disease. Dr. C. had especially observed the prevalence of diarrhoea in the prison during the hot days of last week.

On motion, a special meeting was appointed two weeks from to-night, July 21st, at Dr. Davis' office, for the discussion of cholera infantum, Dr. L. P. Cheeney opening the discussion.

Adjourned.

THOMAS BEVAN, *Secretary.*

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SELECTIONS.

Dr. Edward Brown-Sequard's Experimental and Clinical Researches, applied to Physiology and Pathology.

EPILEPSY—(Continued).

9TH. If there are contractions in the bloodvessels of the brain proper, as there are in the muscles of animal life, in the beginning of an epileptic seizure, it is very easy to explain the variety of sensorial and other cerebral symptoms of epilepsy. In the same way as there are *certain* muscles that contract in the neck, in the larynx, or elsewhere, we may admit that there are *certain* bloodvessels that contract either in some parts of the brain proper, or in the nervous portions of the organs of sense, and in consequence, there is a trouble or loss of either one or several senses, or of the intellectual faculties, consciousness remaining more or less entire ; or there is a successive loss of sight, of hearing, of the intellectual faculties, and, at last of consciousness.

10th. It is well known that sometimes the compression of the carotid arteries stops a fit of epilepsy. Cases of this kind have been mentioned by Liston, Earle, Albers, etc. The same operation in certain animals, and particularly in rabbits in good health, is sometimes sufficient to cause convulsions, so that we are led to the question, How can the same circumstance in one case cause convulsions, and in another diminish or destroy them? My theory may give an explanation of this apparent opposition. Changes in the quantity of fluid in the cranio-spinal cavity cannot take place suddenly, and if there is a considerable diminution in the quantity of blood which enters this cavity, as is the case when the carotid arteries are compressed, there is necessarily a corresponding diminution in the quantity that goes out. The blood which reaches the encephalon by the vertebral arteries having to fill a much larger space, circulates more slowly and becomes much more charged with carbonic acid, and, besides, furnishes much less oxygen to the encephalon, so that if the compression of the carotid arteries be made in healthy animals, it causes convulsions, just as I have found that blood much charged with this acid injected into the carotid arteries, causes convulsions; whereas, if the compression of these arteries be made in man, during an epileptic seizure, there is at first usually a momentary increase in the intensity of the fit, and sometimes after one or two minutes, rarely sooner, a diminution in the violence of the convulsions, and in some cases, a complete cessation of these contractions. Those who have observed what takes place in animals when they are asphyxiated, have remarked that after violent convulsive struggles, while the blood is becoming more and more charged with carbonic acid, there is a diminution of the convulsions, and at last nothing but rare respiratory efforts. Carbonic acid, after having excited the vital properties of the nervous system, seems to destroy them gradually, allowing for a time, however, the production of respiratory movements. The compression of the carotid arteries in epileptics, during a fit, induces a state of asphyxia greater than that already existing, and in so doing, diminishes the vital properties so much that there are no more convulsions. Respiration taking place* then, and the blood-vessels of the brain proper relaxing, the whole encephalon receives more oxygenated blood, and the patient recovers in the

* Of all the reflex phenomena, the regular inspiratory and expiratory movements are those which last the longest; it is so during agony resulting from any disease, it is so after chloroform or ether have been inhaled in large doses, it is so in asphyxia by hanging, drowning, etc., and it is so also in epilepsy.

same way, and by the same means that he does when the compression of the carotid is not employed in a fit.

The theory of epilepsy that we have arrived at from the examination of the phenomena of this disease, is not in opposition with any that we know; and, still more, we might easily show that is in harmony with the most important facts concerning the causes, the variations of the symptoms, the consequences and the treatment of this convulsive affection. We will merely point out, in addition to what we have related above, that the production of epilepsy by lead (which is an excitant of contraction in bloodvessels), by loss of blood, etc., and the important relations of epilepsy with intermittent fever, are facts in perfect harmony with our theory.

We must now say a few words, 1st, on the production of the change in the cerebro-spinal axis, which chiefly constitutes epilepsy (*i. e.*, the augmentation of the reflex excitability); 2d, on the production of the change of certain parts of the skin, mucous membrane, etc., which renders these parts capable of exciting epileptic seizures; 3d, on the mode of production of a fit of epilepsy from excitations springing either from a peripheric part or a central part of the nervous system; 4th, on the consequences of an epileptic seizure, and on the inter-paroxysmal state.

1st. The production of a change in the reflex excitability of the cerebro-spinal axis we think may take place in two different ways, one of which is a *direct* abnormal nutrition, as in syphilitic, scrofulous or rheumatic epilepsy, while the other is an *indirect* abnormal nutrition, due to some excitation from a peripheric or a central part of the nervous system. The *modus operandi* of such excitations we do not know positively, but very likely, in a number of cases, at least, it is through the bloodvessels of the cerebro-spinal axis that these excitations operate to change the nutrition of this nervous axis. We have ascertained that many substances which act upon the spinal cord, either in increasing its reflex faculty (such are strychnia, morphia, etc.), or in diminishing it (such are belladonna, ergot of rye, etc.), produce their effect chiefly by their influence on the bloodvessels of this nervous centre. When they excite the bloodvessels to contract, they diminish nutrition, and cause paralysis; when they diminish the contractility of the blood-vessels, and therefore allow them to dilate, there is more blood in the spinal cord, and its nutrition is increased. Then the reflex faculty becomes greater, and irritations may cause convulsions. In animals and men, not having taken any of these substances, the reflex excitability of the cerebro-spinal axis may

be increased in the following ways. An excitation on some part of the nervous system causes a contraction of the small bloodvessels of a part of the cerebro-spinal axis, and as the same quantity of blood still arrives by the various arteries in the cerebro-spinal cavity, it results that if the small ramifications of some arterial branches are contracted, the others receive more blood, so that nutrition, and, in consequence, the reflex excitability, augment in the parts to which they are distributed. But this is not likely to be the most frequent mode of increase of nutrition. We have found that when a vascular nerve is excited for a long while, the contraction of the bloodvessels after a certain time ceases, and a dilatation takes place, which lasts longer than the contraction, although the nerve is still excited: this is a paralysis by excess of action. In the nervous centres, very likely the paralysis of the bloodvessels supervenes also after considerable contractions, and in consequence of this paralysis, nutrition is increased in the parts of these centres where it exists, as we have found that nutrition is increased in the nerves and muscles of the face, when their bloodvessels are paralyzed. With the increase of nutrition in the nervous centres comes the augmentation of the reflex excitability, which seems to be the principal element of epilepsy.

Besides these causes, there is another of greater importance, which may exist when they do not: the nerve-fibres animating the bloodvessels of the parts of the cerebro-spinal axis where epilepsy has its seat, may be paralyzed as the nerve-fibres of the muscles of animal life are by a disease of some part of the nervous centres, and the consequence of this paralysis is necessarily an increase of nutrition and of reflex excitability. This is a fact which we have positively ascertained; the section of a lateral half of either the medulla oblongata or the spinal cord is the cause of paralysis of the bloodvessels of the cord on the same side, the consequence of which paralysis is that nutrition and the reflex excitability of the cord become much increased. When the spinal cord is cut across entirely, in mammals as well as in cold-blooded animals, the part separated from the encephalon has its bloodvessels paralyzed, and therefore dilated. Nutrition and the reflex excitability are soon much increased in this part, and it is sufficient to touch the skin or the mucous membrane of the genital organs, or of the anus, to determine violent spasms.* This cause of production of epilepsy, or at

* I had said, in a paper read last year at the *Academie des Sciences* of Paris (*Arch. Gen. de Med.*, Fev., 1856), that in making the autopsy of my epileptic animals, a congestion of the base of the encephalon and of the Gasserian gan-

least of an increased reflex excitability, must exist in a very great degree in cases of tumors of the pons Varolii, or of the medulla oblongata, and if they do not cause this convulsive affection more often it is very probably because the moral and the emotional excitation of fits cannot act in many of these cases.

When an excitation coming from some peripheric nerve produces in the cerebro-spinal axis the change of nutrition which causes epilepsy, it is very likely that this excitation sometimes, if not always, acts otherwise than by producing a contraction of some bloodvessels. Whether this action is like those due to electricity or not, we cannot tell, but we think that an opinion which we had held for many years with Donders, and some other physiologists,* must be modified. This opinion is that all the nervous influences on nutrition, secretion, &c., either direct or by reflex action, act only in causing contractions or paralytic dilatations of bloodvessels. This view, which has been criticised with much ability by Prof. James Paget, in his admirable lectures on nutrition and on inflammation, seems to have been proved to be too absolute by the important researches of Prof. Ludwig and his pupils (see *Physiol. des Menschen*, von Donders, vol. i., p. 187-9, 1856), which appear to establish positively that there is another mode of influence of the nervous system, at least on certain glands; an influence resembling that possessed by electricity in causing chemical combinations or decompositions.†

2d. The changes produced in peripheric parts, rendering them able to excite fits of epilepsy, consist more in alterations in the nature of the excitations that may spring from peripheric nerves than from an increase in the felt excitations coming from these nerves. We have shown already that in our animals the skin is not more sensitive in the parts of the face which are

glion is found; but I have ascertained since that in a great measure this congestion is a result of the fits and of the irritation of the skin of the face by pinching or otherwise, and not a circumstance preceding the first fit, and connected with the production of the increase of the excito-motory power of the skin.

* The same thing sometimes occurs in man. In a case of fracture of the spine, recorded by Dr. Knapp (N. Y. Journal of Medicine, Sept., 1851, p. 198), there was a paralysis of the abdominal limbs. A month after the accident, there were slight spasms in those limbs; in four months, the spasms became violent; on exposure to the cold air, or to a sudden touch, the muscles were thrown into the most violent agitation.

† Prof. Claude Bernard, in announcing recently his important discovery of the substance which in the liver gives origin to sugar, expresses himself very strongly in favor of this opinion. (*Gaz. Med. de Paris*, 1857, p. 202.)

capable of exciting fits than in the other parts of the face which have not that power (see § IV). In man, as we have also shown elsewhere (see § XI.) it is to the nature of the excitation, and not to the degree of pain, springing from some peripheric nerve, that we must attribute the production of the fits. The fact that excitations, starting from the periphery and causing fits, may not be felt, and the fact that when there are sensations accompanying these unfelt excitations, they may vary as to their kind, and sometimes be very feeble, certainly are important arguments to show that the real cause of the fit is something which is not felt. If the term *aura epileptica* had not been employed already to express the sensations which accompany the excitation of the fits, it would be well to employ it to name the unfelt excitation which is the real exciting cause.

In inquiring into the nature of the unfelt aura, we find that very probably it is nothing but a violent excitation originating in the excito-motory nerve-fibres. Dr. Marshall Hall and Mr. Grainger have long ago imagined that there are nerve-fibres which are employed in reflex actions, and not in sensations and in voluntary movements; but they did not adduce direct facts to prove the correctness of their views. I have found many facts which seem to give the proofs hitherto needed that there are nerve fibres which are employed in exciting reflex actions, and which are neither sensitive nor capable of transmitting sensitive impressions to the encephalon. I have found also, that the excito-motory power, like the sensibility of nerves, varies in different parts of their length (see my *Experimental Researches applied to Physiology and Pathology*, New York, 1853, p. 98), and also in the same part, according to various circumstances.

Besides, I have ascertained that in certain parts where the excito-motory power seems not to exist, it may be generated, and become considerable. Now, as the fibres which have this power seem not to be sensitive, we understand why an excitation may originate from them, reach the nervous centres, produce the loss of consciousness and convulsions by a reflex action, without giving pain, or even any sensation. We may understand also that this reflex excitation may produce cramps by a reflex action in the muscles which are in the neighborhood of the starting point of the excitation, which cramps give rise to a pain wrongly considered as a primitive aura, although it is only a secondary and almost inefficient one.

With the view that in the very beginning of epileptic fits, caused by excitations coming from peripheric nerves, it is not the sensitive nerve-fibres, but only the excito-motory fibres

which are in action, we can easily explain many facts. For instance, in my animals, the power of giving rise to fits, belonging to the cutaneous ramifications of nerves and not to their branches or trunks; in man, the absence of sensations, although there is an excitation from some peripheric nerves, as in the case of M. Pontier (see § IX., Case VII., and many others mentioned in § XI).

What the causes of the increase of the excito-motory power are, we cannot tell positively. We know, however, that some causes increase all the vital properties of nerve everywhere, and among these causes we will point out a paralysis of the blood-vessels, or the development of inflammation. But there are other causes of which we are ignorant; in my animals, for instance, there is but a slight increase in the vascularization of the part of the skin which has the power of giving rise to fits, and this might be due to the pinching employed to irritate the skin.*

The changes taking place in the peripheric nerves, either in the skin, in the mucous membranes or in their trunks, when they become able to excite epileptic fits, may be produced by the influence of distant parts. For instance, in my animals, alterations of the spinal cord as low down as the *cauda equina* have sometimes been productive of the peculiar change in the face and neck which renders these parts able to excite fits. In man, tumors of the brain seem to have produced a similar change in one arm.

In my animals I cannot decide whether it is through some direct nervous influence upon the nutrition of the skin of the face and neck, or if it is through an indirect influence, and by means of the bloodvessels, that the spinal cord acts on this part. I have found that changes in nutrition occur in other parts of the head—such as the cornea—in animals upon which the section of a lateral half of the spinal cord has been made, but is this a direct or an indirect influence? I cannot decide. It is very well known that the sympathetic nerve in the abdomen may influence the nutrition of the eye through the spinal cord, but does the influence result from a change in the calibre of the

* We still maintain, however, as we have done for many years, that the influence of the nervous system on nutrition and secretion, either direct or reflex, is in a great measure due to the influence of nerves on the muscular layer of the bloodvessels. Even galvanism, in improving nutrition, we have proved to act partly in this way; it contracts the bloodvessels, and in so doing diminishes circulation and warmth. But after a certain time of violent contraction, the bloodvessels become paralyzed and dilated, so that more blood passes through them, and the temperature and nutrition are increased.

blood vessels of the eye, or is it a direct influence, like that of certain nerves on the salivary glands, according to the great discovery of Ludwig?

As regards tumors of the brain, the important case of Odier (see § VIII., Case I.) seems to show that they may produce in the arm that peculiar change in peripheric nerves which renders them able to excite fits of epilepsy. But it is by far much more probable that it was not by an action of the brain, but through the irritation of the sensitive or excito-motor nerves of the scalp, or in consequence of the compression of the base of the encephalon, that the change of nutrition took place in the arm.

3d. In the two preceding sections I have examined how are produced the two organic causes of epilepsy; *i. e.*, the increase of the reflex excitability of certain parts of the cerebro-spinal axis, and the increase in the excito-motor power of the peripheric nerves. I have now to say a few words on the mode of production of the most interesting phenomena of a complete fit of epilepsy.

The first phenomenon of such a fit is not always the same, and this explains why the best observers do not agree in this respect. Dr. Marshall Hall for a long while considered as the first symptom a distortion of the eye-balls and of the features, and he admitted as the second phenomenon a forcible closure of the larynx, and an expiratory effort (*Diseases and Disarrangements of the Nervous System*, 1841, p. 323). In many subsequent publications (see *Lancet*, June 12, 1847, p. 611, and *Aperçu du Système Spinal*, 1855, p. 201) he seems to consider as the first phenomena the contraction of the muscles of the neck and of the larynx. Dr. C. J. B. Williams (*General Pathology*, 2d Am. Ed., p. 166) says that the first phenomenon is a palpitation of the heart. Herpin (*Loco cit.*, p. 421-5) after having tried to show that when there is an aura the first phenomenon consists in a local cramp, says that the second phenomenon (the first when there is no aura) is the epileptic cry. According to Bean (*Arch. Gen. de Méd.*, 1836, p. 339), Delasiauve (*Loco cit.*, p. 65) and Hasse (*Krankheiten des Nervenapparates*, 1855, p. 251), the epileptic cry, in the most complete cases of epilepsy, may not exist. I have witnessed two fits of epilepsy in which the most violent convulsions and a complete loss of consciousness, followed by coma, took place without cries. Is the loss of consciousness the first symptom? Most of the principal writers, who ignore the power of the reflex actions, consider the cry as a proof of feeling: surprise, according to Bean; surprise and pain, according to Herpin (*Loco cit.*, p. 477); surprise, convulsion and pain, according to Delasiauve

(*Loco cit.*, p. 77), and they admit, therefore, that the loss of consciousness is not the first symptom, at least in most cases. Billod attributes the cry to the convulsive spasm of the laryngeal muscles, and to a convulsive expiration (*Annales Méd. Psychol.*, Nov. 1843). According to him, the loss of consciousness precedes the cry, which is not a symptom of surprise or of pain. Hasse considers the cry as being probably the result of a reflex action (*Loco cit.*, p. 251-2). I have tried to show elsewhere (*Exper. Researches applied to Physiol. and Pathol.*, New York, 1853, p. 54-5) that cries in animals or in children deprived of their brain, may be due to a mere reflex action; the vocal cords being contracted, and the expiratory muscles expelling quickly the air contained in the chest, the sound which we call a cry is produced. In epilepsy, the loss of consciousness, which is equivalent to the loss of the brain, allows a cry to take place by reflex action. In the most complete and violent fits of epilepsy, we think that the first phenomena are almost always 1st, the contraction of the blood-vessels of the face, which causes the paleness, noted particularly by Prof. Rousseau, by Delasiauve and by Dr. Bland Radcliffe; 2d, the contraction of the bloodvessels of the brain proper, which causes the loss of consciousness. The cry, either at the same time, or immediately after, is produced by the spasmodic contraction of the expiratory muscles driving the air forcibly through a contracted glottis. At the same time, also, almost always some muscles of the face, of the eye, and of the neck contract. Sometimes, also, the spasm extends at once to the muscles of the upper limbs, and afterward to the whole body. All these phenomena are sometimes produced at once, and are all the results of an excitation springing from some part of the excito-motory side of the nervous system. In other cases there is an evident succession in these phenomena; the paleness of the face and the loss of consciousness (both resulting from contractions of the blood-vessels) take place at first, with some spasmodic actions of the muscles of the eye and face, and then come the cry and the tonic contraction of the muscles of the limbs and trunk.

The following table will show how the principal phenomena are generated, *one by the other*, in the most common form of the violent and complete epileptic seizures.

CAUSES.

1. Excitation of certain parts of the excito-motory side of the nervous system.
2. Contraction of the bloodvessels of the face.

EFFECTS.

1. Contraction of bloodvessels of the brain proper and of the face, and tonic spasm of some muscles of the eye and face.
2. Paleness of the face.

3. Contraction of the bloodvessels of the brain proper.
4. Extension of the excitation of the excito-motor side of the nervous system.
5. Tonic contraction of the laryngeal and of the respiratory muscles.
6. Farther extension of the excitation of the excito-motor side of the nervous system.
7. Loss of consciousness, and tonic contraction of the trunk and limbs.
8. Laryngismus, trachelismus, and the fixed state of expiration of the chest.
9. Insufficient oxygenation of the blood, and many causes of rapid consumption of the little oxygen absorbed, and detention of venous blood in the nervous centres.
10. Asphyxia, and perhaps a mechanical excitation of the base of the encephalon.
11. Exhaustion of nervous power generally, and of reflex excitability particularly, except for respiration. Return of regular inspirations and exspirations.
3. Loss of consciousness, and accumulation of blood in the base of the encephalon and in the spinal cord.
4. Tonic contraction of the laryngeal, the cervical and the expiratory muscles (laryngismus and trachelismus).
5. Cry.
6. Tonic contractions, extending to most of the muscles of the trunk and limbs.
7. Fall.
8. Insufficient oxygenation of the blood, and general obstacle to the entrance of venous blood in the chest, and special obstacle to its return from the head and spinal canal.
9. Asphyxia.
10. *Clonic convulsions everywhere*, contractions of the bowels; of the bladder; of the uterus; erection; ejaculation; increase of many secretions; efforts at inspiration.
11. Cessation of the fit; coma or fatigue; headache; sleep.

We have but little to say in explanation of the above table, which only gives, as we hardly need to remark, a type of a complete seizure.

Writers on epilepsy are unanimous in considering the *fall* as due only to convulsions, while it is certainly, in a measure, the consequence of the loss of consciousness, which alone causes it in some cases of epileptic vertigo without convulsions.

We do not think that laryngismus in epilepsy has the immense importance given to it by Dr. Marshall Hall. In the first place, in persons in whom the reflex excitability is not increased laryngismus exists frequently, in whooping cough, in asthma, &c., without producing epileptic convulsions. In the second place, epileptic convulsions may exist before laryngismus (Hasse, *loco cit.*, p. 252). If, instead of saying that laryngismus is the essential cause of convulsions in a fit of epilepsy, we say that asphyxia, whether produced by laryngismus or by other causes, is the source of a certain part of the convulsions in the violent and complete fits of epilepsy, we shall be much nearer the truth. If we say also that laryngismus is nothing

but a spasm of certain muscles—spasm produced by a reflex action at the same time that there are other spasms in the bloodvessels of the brain proper, of the face, and also sometimes of the whole surface of the body, and in the muscles of the head, of the trunk and limbs, and that all these spasms are reflex contractions, due to the same excitation, we shall be much nearer the truth than by admitting Dr. Hall's views.

BOOK NOTICES.

The Physiological Anatomy and Physiology of Man. By Robert Bently Todd, M. D., F. R. S., etc., etc., and William Bowman, F. R. S., etc., etc. Complete in one volume, with two hundred and ninety-eight illustrations. Blanchard and Lea, Philadelphia. Keen and Lee, Chicago, 1857.

The authors began the arduous and difficult task of writing the above work in the year 1843, intending to have issued it much sooner, and to have made it only subserve the purpose of a text book for the Lectures on General Anatomy and Physiology, given in King's College, London. Finding the sciences of Anatomy and Physiology becoming daily more and more extended, the field for observation and study rapidly enlarging, and many new subjects presenting themselves, requiring further and more careful investigation, they were compelled to delay its publication thus long, hoping the additions and modifications it enabled them to make would compensate for the procrastination. No one acquainted with the science of medicine but that feels within himself the very prominent position Anatomy and Physiology hold therein. They are the groundworks of our professional knowledge, and the great barrier that separates us from the imposing charlatan. The student will find them indispensable to the successful prosecution of his studies; the physician, invaluable interpreters at the bed-side. This branch of our science, then, so important, could not well escape the notice of our most eminent men, whose enthusiasm has led to investi-

gation and study so thorough as to transform it almost into a new being. Nothing seems better calculated to stimulate us to greater zeal and exertion than the advances made in this department of our science within the last few years. The above work shows how patiently and how sedulously its authors must have labored to achieve their part in the promotion of these sciences, and how well they have succeeded. Its perusal will at once test its superior merit, and in no other way can our friends expect to become acquainted with its contents. We do not intend to write a critical analysis of the work, but merely a brief notice of its contents, sufficient to enable our readers to judge of its extent and importance. It is a large-sized volume, containing over 900 pages, is plainly printed, and handsomely bound. Besides the introduction it contains 44 chapters, which comprise the consideration of the following subjects: i, Of the Constituents of Animal Bodies—The Tissues and their Properties; ii, Of the Minute Movements occurring in the Body; iii, iv, v, vi, Of Locomotion—Its Passive Organs; vii, Active Organs of Locomotion; viii, ix, x, xi, xii, xiii, xiv, xv, xvi, xvii, xviii, xix, xx, xxi, Of Innervation; xxii, xxiii, xxiv, xxv, Digestive; xxvi, Absorption; xxvii, The Blood; xxviii, The Circulation of the Blood; xxix, Respiration; xxx, Animal Heat; xxxi, The Voice; xxxii, Secretion; xxxiii, xxxiv, Secreting Glands; xxxv, Ductless Glands; xxxvi, xxxvii, xxxviii, xxxix, xl, Generation; xli, xlii, xliii, Development; xliv, Lactation. Having thus enumerated the headings of each chapter, our readers at once perceive the vast amount of matter which this volume brings before us. Questions of difficult solution, and such as yet seem to be unsettled, are all discussed and disposed of with apparent satisfaction to our authors, and doubtless with as much correctness as the present state of our knowledge will admit. That we are yet far from well ascertained and incontestable proof as regards the functions of life, few will hesitate to deny. In the introduction, our authors, in discussing the different "theories of life," have placed the subject before us on physical and chemical principles quite prominently. They say: "Many of the phenomena of life may be accounted for on chemical or physical principles. The changes effected in the

air and in the blood by respiration, the phenomena of absorption, and, in some degree, those of secretion, are the results of purely physical processes." They also suggest the probability that the actions of the nervous system are due to physical changes, digestion to a chemical process, and the generation of heat to the same chemical phenomena as will give rise to it in the inorganic world. Aristotle and Harvey attributed the organization of animals and vegetables, and the vital actions exhibited by them to a series of "Animating Principles." Muller, to the presence of an "Organic Force." Prout, to certain "Organic Agents." Hunter, to a "Materia Vitæ." Each of these theories have, for a time, sustained a reputation of correctness, and were looked upon as being able to account for that principle we call "Life," but have each, in turn, been found wanting. The chemical and physical explanation was long since adopted, and has had many able advocates who still support it, with at least a plausibility quite equal to the other, and, at present, its most formidable rival, the "vital principle." Time and research must settle this question. Further on in the introduction we find a statement which has attracted our attention, more particularly as it is so directly opposed to the doctrine of M. Bernard of Paris, who has recently written a work on Physiology. M. Bernard may perhaps be fairly considered as the greatest experimenter on the living or recently killed animals in the world, and his experiments have inaugurated a new epoch in the science of Physiology. He adopts an entirely different method of investigation from that of any previous author, and one quite opposed to that recommended by Todd and Bowman. M. Bernard starts with the function or physiological phenomena, and endeavors to trace it back to the organ which gives rise to it. He does not believe we can, by first making ourselves acquainted with the anatomy of an organ, determine its use, whilst our authors say: "The study of Anatomy must always accompany that of Physiology, on the principle that we must understand the construction of a machine before we can comprehend the way in which it works." Starting, then, with entirely different views as regards the proper mode of studying this branch of our science, we may reasonably suppose they

often differed in their results or conclusions. In Chapter XI. we find our authors, in speaking of the "Functions of the Spinal Cord," attribute it to a "polar state," capable of producing actions quite independent of the will or sensation. This "polarity" may be produced either by direct irritation of its substance, or by the influence of a stimulus conveyed to it through the medium of the nervous trunks. Tetanus is given as an example of this form of action. Opium is also capable of producing it, and is, consequently, inadmissible in that disease. Epilepsy is explained on the same hypothesis. This class of actions they attribute entirely to physical changes produced in the nervous centres and trunks.

The celebrated theory of Gall respecting the functions of the cerebellum they deem far from admissible, and have supported their argument on quite reasonable, if not conclusive grounds. They adopt the conclusion drawn by Flourens, "that the cerebellum possesses the power of coordinating the voluntary movements which originate in other parts of the cerebro-spinal centre, whether these movements have reference to locomotion or to other objects."

In concluding this chapter the following inferences are set forth.

I. "The Spinal Cord contains within itself all the physical conditions necessary for the mental and physical actions of the trunk and extremities, so long as its connection with the encephalon is perfect through the anterior pyramids.

II. "There is no sufficient evidence to prove the existence of a class of sensori-volitional fibres distinct from those which are the instruments of physical actions.

III. "Each segment of the cerebro-spinal centre, whether in the cranium or in the spinal canal, gives origin to its own proper nerves, and has no connection with the neighbouring segments otherwise than by commisural fibres or vesicular matter.

IV. "The antero-lateral columns of the cord, with the anterior and posterior horns of the gray matter, are the effective centres of motion and sensation of the trunk and extremities. The posterior columns are longitudinal commissures, by which the influence of the cerebellum is brought to bear on the various segments of the cord.

V. "When the pyramids are in a state of integrity the corpus striatum, certain accumulations of gray matter connected with the nerves of the medulla oblongata, the locus niger, and the anterior horns of the spinal gray matter, are the centres of voluntary motion to the whole body; while the optic thalami, olfactory columns and posterior horns of gray matter are the centres of sensation."

VI. "The medulla oblongata, when connected to the corpora striata by the pyramidal fibres, is a centre of voluntary actions to those parts whose nerves are derived from it; and, in addition, it is the principle centre of the actions of respiration and deglutition."

VII. "The corpora quadrigemina are primary centres of visual impressions, and, with a large portion of the gray matter in the mesocephale, are centres of emotional actions."

VIII. "The cerebellum is the co-ordinator of voluntary and locomotive actions."

IX. "The convolutions of the brain are the centres of intellectual actions, and are intimately associated with the mental phenomena of attention, association and memory."

After considering briefly the subject of sympathetic actions Todd and Bowman have taken up in regular order the special senses. Beginning with that of touch, they first give the minute anatomy of the skin and its appendages, then define it as it becomes the "*organ of touch*," and, finally, describe the peculiarity of different impressions, their seat, and duration. The same order is observed in studying the sense of taste, smell, hearing and vision. Each is preceded by a full description of all the parts concerned in their production, their exact location determined, and those agents which most influence them. The whole subject has received from them special care, and is studied with great satisfaction and profit. Chapter xix treats of those nerves exclusively motor in function. To this class belong the third, fourth, sixth, seventh and ninth pairs. The fifth and eighth pairs are compound in their operations. The fifth is one of the most interesting and extensively connected in the whole body. The eighth pair consists of three separate nerves, the *pneumogastric*, the *glossopharyngeal*, and the *spinal*

accessory. A detailed account of each is given, and their physiological action. The following conclusions are drawn respecting the pneumogastric and its branches :

1. "That the vagus nerve contains filaments both of sensation and motion."
2. "That its pharyngeal branches are motor."
3. "That its superior laryngeal branch is the sensitive nerve of the larynx, containing a few motor filaments to the crico-thyroid."
4. "That the inferior laryngeal is the principal motor nerve of the larynx."
5. "That the cardiac branches exert a slight influence on the movements of the heart."
5. "That its pulmonary branches contain both motor and sensitive filaments, and exercise an important influence on the respiratory acts, for they cannot be destroyed without retarding materially the respirations, impeding the passage of blood through the lungs, and causing oedema of these organs."
7. "That its oesophageal branches are the channels through which the muscles of that tube are excited, through the medulla oblongata, to contract."
8. "That the gastric branches influence the movements of the stomach, and, probably, in some degree the secretions and the sensibility of its mucus membrane; but that their integrity is by no means essential to the continuance of this secretion, or to complete chymification."

Four chapters are devoted to the study of digestion. Our authors first classify the different kinds of food according to Prout. They then give the anatomy of the several organs concerned in this process, and the function of each. The saliva, the gastric juice, the bile, and the pancreatic juice, are each studied separately, and the parts they play in this organic function clearly assigned. The glands of the intestines and their secretions are quite elaborately considered, and many interesting experiments detailed. The next subject in order, is absorption; explained on purely chemical and physical principles. Following this, the examination of the blood; *first*, as regards its quantity; *second*, its coagulability; *third*, its physi-

cal analysis; and *fourth*, its chemical analysis. Its circulation comprises the subject of one chapter, in which is given the minute anatomy of the arteries, veins, capillaries, and the central organ of circulation, to precede the study of the influence exerted by each in propelling their contents. Respiration, and animal heat are next studied in connection with the changes effected in the air and blood by the former, and also the changes going on in the animal economy, giving rise to the production of the latter. The consideration of the "ductless glands" is taken up in chapter xxxv., and after entering minutely into the anatomy of their substance, their bloodvessels, nerves and lymphatics, they proceed to point out the functions they perform. To the spleen, they assign the office first advanced by Holliker, in 1847, and afterwards supported by Ecker and Beclard, viz: "the disintrigation of blood corpuscles." This theory is directly opposed to those who have adopted the view that blood corpuscles were formed in the spleen. As regards the functions of the supra-renal capsules, the thyroid and thymus glands nothing is definitely known. The work closes with the study of Generation and Lactation. The interesting and intricate subject of generation is fully treated, and contains much valuable instruction. In it we find much that would afford questions of controversy, and difference of opinion, as, perhaps, we ever shall, on all subjects so mysterious and obscure.

Our notice, though it conveys but a very feeble and imperfect idea of the magnitude and importance of the work now under consideration, already transcends our proper limits; and, with the indulgence of our readers, and the hope that they will peruse the book for themselves, as we feel we can with confidence recommend it, we leave it in their hands, for them to judge of its merits.

G. K. A.

Transactions of the South Carolina Medical Association, at the Extra Meeting in Sumpter, and at the Annual Meeting in Charleston.

The transactions of the above Association are well arranged in pamphlet form, embracing 64 pages of interesting and im-

portant matter. They contain an abstract of the proceedings of the "Board of Counsellors" at several regular and adjourned meetings, and also, the minutes of the extra meeting at Sumpter, and annual meeting at Charleston. The association seems to be in a highly prosperous and flourishing condition, and to have at its foundation the elements of success. The Appendix consists of the principal papers read before the Association, and the By-Laws. Among the papers of most interest, is one entitled, "Observations on the Medical Properties of the Gelsemium Sempervirius—Yellow Jessamine—by J. A. Myers, M. D., from which we extract the following conclusions of the writer.

"I regard it as a direct sedative; more safe and manageable than veratrum viride, and more generally applicable in practice."

"I esteem it a most valuable adjuvant to other treatment in all cases where high arterial action exists, in which it is desirable to lessen the frequency of the pulse, and to calm excitement, and when, as in the case of injuries, it is desirable to lessen the irritability of the nervous system; also, in that troublesome hysterical exaltation of the nervous sensibilities, so often met with in enervated females, its value cannot be too highly estimated."

"In short, it is a specific for no particular disease, but an admirable adjuvant in the treatment of nearly all."

"With its poisonous effects when given in over-doses, I have no acquaintance, but do not doubt the possibility of its doing harm in the hands of the careless."

The oration by Dr. H. Smith, Report of Committee on Disease Tables, Prof. Shephard on Aluminum, and Dr. Ware on Mercury in Typhoid Fever, are all full of interest, and well merit the attention of the profession. We bespeak for them a general perusal.

G. K. A.

EDITORIAL.

Dr. Marshall Hall.

In our last number we announced the death of this distinguished physician.

We are sure our readers will be interested with the following biographical sketch, taken from our exchanges :

Death, the most unsparing of tyrants, has exacted from the greatest physiologists of the age the last debt of nature. Slowly, surely, and relentlessly, disease has been undermining the earthly tabernacle of a mind which, for vast powers, high purposes, and indomitable energy, has found no superior in its native land in the present half-century. On Tuesday last, the 11th inst., Dr. MARSHALL HALL died at Brighton, aged 67 years.

It is impossible to record this melancholy event without feelings of the deepest sorrow. The loss is one which all must feel keenly who have a reverence for high endeavors, for earnest devotion to science, and for all the sterling qualities which can adorn a man. Science has lost the worthiest of her sons, medicine has lost a great master, and philosophy a great thinker. The clear and vivid intellect of this great man has steadily and successfully risen superior to the depressing influences of disease for the last fifteen years. Even during the present year, when confined to one room, his chamber has been a scene of intellectual activity. Physical debility, which robs most men of their powers of thinking and reasoning, had not dimmed the brightness of his wonderful mind. Clear and penetrating, and impelled by a wide philanthropy, the last contribution of Dr. Marshall Hall to science has been a pre-eminently useful one to the cause of humanity. It is thus that great men should die. There is a grandeur in such a life-end, to which the mere external grace of a falling Cæsar is not for one moment comparable.

Dr. Marshall Hall was born at Bashford, in Nottinghamshire, in the year 1799. His father was a manufacturer, and a man of no small capacity and information, and had the merit of being the first person to perceive the value of chlorine as a decolorizing agent, and applying it on a large scale. The gifts of intellect were bestowed with no sparing hand in this family. The father and two sons fully vindicated their claims to high

intellectual endowments. But Dr. Marshall Hall has eclipsed his less brilliant relations. What in them was acumen and sagacity, was developed in him into genius. There was in him that rapid and far-searching intellectual vision which travels into regions far beyond the common ken of man, visible and appreciable only to the eagle glance of an almost prescient inquirer.

The history of such a man cannot fail to present numerous points of interest. The investigation of the rise and progress of a mind which has ever been foremost in the ranks of science, must afford many good and useful lessons. No fitful glare can be recognised in this life—no charlatanic attempt to pluck a crown of laurels which was not deserved; but a stern conscientious, and faithful continuance of patient scientific toil, and the solid reward of a vast reputation.

The first step in Dr. Marshall Hall's education was taken at Nottingham Academy, then conducted by the Rev. J. Blanchard. From this school he went to Newark, where he acquired some elementary and chemical knowledge. But the first salient point in the life of Dr. Marshall Hall was his matriculation at Edinburgh University, in the year 1809. For a vigorous and apt mind, no better school could then have been chosen. In the present day it is hardly possible to realize the enthusiasm which inspired Edinburgh at that time. There were giants in those days. Enthusiasm, indeed, is almost too tame a word. There was a furor, an excitement produced by the united influence of a complete galaxy of talent. It was impossible but that such men as Cullen, Home, Rutherford, Gregory, Hamilton, Bell, and Barclay should kindle in the ardent minds of a vast concourse of students a flame which should burn with answering brightness to their own. From the school of that time we know many great men have sprung. It is unnecessary to particularize names which are "familiar in our mouths as household words." In that genial atmosphere, then, did Marshall Hall first imbibe that enthusiastic love of science which has been his most marked characteristic. With youthful impetuosity he plunged into the study of chemistry. Not content with merely assimilating the accepted doctrines of the science, he boldly endeavored to push its boundaries farther. With wonderful power of generalization for so young a man, and with such small materials as then existed for the purpose, Dr. Marshall Hall pointed out that there was a grand distinction between all chemical bodies, which ruled their chemical affinities. He showed that this distinction was the presence or absence of oxygen. That oxygen compound combined with oxygen com-

pounds, and compounds not containing oxygen with compounds similarly devoid of that element; and that the two classes of compounds did not combine together. He believed that this general law would elucidate other chemical doctrines, and might prove valuable in the prosecution of still more recondite principles. But a mind of such soaring aspirations was not likely to confine itself even to such a comparatively wide field as chemistry. The vast domain of medicine was before our student, rich in unexplored regions, abounding in all that could excite his eager spirit of inquiry, and reward his love of definite results. It was exactly at this period in the history of modern medicine that physicians were taking stock, as it were, of their old principles. Morbid anatomy, pursued in close connection with clinical medicine, was showing the effects of diagnosis. With the sagacious eye of one who was capable of seeing that the great necessity of the day was a science of diagnosis, Dr. Marshall Hall threw himself into the prosecution of this immensely important department of medicine at once. Here again we find fresh evidence of his eminently progressive spirit. No mere systematizing of what other men had gathered, but an original and comprehensive treatise resulted from the labors of his student life and early years in the profession.

In 1812 Marshall Hall took his degree of M.D., and shortly afterwards was appointed to the much-coveted post of house-physician, under Drs. Hamilton and Spens, at the Royal Infirmary of Edinburgh. In the following year we find Dr. Hall lecturing on the Principles of Diagnosis to a class, amongst whom were Dr. Robert Lee and Professor Grant. It was from this course of lectures that the treatise on Diagnosis, which was first published in 1817, took its origin.

In 1814 Dr. Marshall Hall left Edinburgh, after a residence there of five years. Great as was the individuality of this remarkable man, we cannot but point out that he was reared in a great school, taught by great men, and infected with an enthusiasm which prevailed, in some degree, all who came within its magical circle. Before entering upon his career as a private practitioner, Dr. Hall determined to visit some of the continental schools. We find him, therefore, shortly after his departure, successively at Paris, Berlin, and Gottingen. The journey was made partly on foot, and armed. At Gottingen Dr. Hall became acquainted with Blumenbach.

In 1815, Dr. Marshall Hall settled at Nottingham as a physician, and he speedily acquired no small reputation and practice. After a time, the appointment of physician to the General Hospital there was conferred upon him, and in that

sphere he labored until his removal to London, about ten years after his first settlement at Nottingham. Of his work on Diagnosis it is almost unnecessary for us now to speak in terms of praise. Comprehensive, lucid, exact, and reliable, this work has, in the main, stood the test of forty years' trial. A better has not been produced. It was at this period of his career, too, that Dr. Hall made his researches into the effects of the loss of blood, the result of which was embodied in a paper read before the Royal Medical and Chirurgical Society in 1824. This paper and another in 1832, detailing Dr. Hall's "Experiments on the loss of blood," were published in the "Transactions of the Royal Medical and Chirurgical Society." It is hardly possible to overrate the importance of these inquiries. They revolutionized the whole practice of medicine. A new light broke in upon the medical world. A distinction, not recognized before, was drawn between inflammation and irritation. It was pointed out that delirium and excitement were by no means necessarily declaratory of cerebral or meningeal inflammation, or even congestion. Loss of blood was shown to be at the root of much that had passed before for various grades of inflammation. Practical rules were educed both for treatment and diagnosis. It was shown that active inflammation produced a tolerance of bleeding from a free opening in the upright posture; and the rare merit of supplying at once a rule of treatment and a rule of diagnosis was Dr. Marshall Hall's. Other works came forth from his pen about this time, for his mind was teeming with ideas, and his activity as an observer was unparalleled. It is hardly possible to enumerate all, but in 1827 came the "Commentaries upon various Diseases peculiar to Females"—a work which may still be consulted with advantage.

It was in 1826 that Dr. Marshall Hall sought this great metropolis as the umbilicus of the world. So active and earnest a mind could not find enough to satisfy its eager cravings in a provincial town. It was here, in this mighty city, that he determined to measure himself with numerous competitors, and to win, if possible, all the honor and all the rewards that fortune can give to those who woo her stoutly. The mind of this great man was essentially metropolitan and liberal. A fair field and no favor, and victory to the strongest, were the characteristics of his mind.

The next onward step in Dr. Marshall Hall's career was a series of researches into the circulation of the blood in the minute vessels of the batrachia. A great step in physiology resulted from these. It was shown that the capillary vessels, properly so called, are distinct, absolutely, both in structure

and function, from the smallest arteries or veins; that the capillaries, or *methæmata*, are the vessels in which the nutritive changes in the economy are carried on.

But the great source of Dr. Marshall Hall's honor, the basis upon which his fame must rest in all time to come, was yet undeveloped; his paramount claims to the admiration of his cotemporaries and of posterity consists in his discoveries concerning the nervous system. Like all really important discoveries in natural science, those of Dr. Marshall Hall have had great practical effects. The soundest theory has been shown to be the best foundation for practice. That stupid heresy, that there is a vital distinction between the practical and theoretical man, was never more completely disproved than in the case of Marshall Hall. But we must endeavor to trace the progress of his researches. While engaged on the Essay on the Circulation of the Blood, it happened that a triton was decapitated. The headless body was divided into three portions: one consisted of the anterior extremities, another of the posterior, and a third of the tail. On irritating the last with a probe, it moved and coiled upwards; and similar phenomena occurred with the other segments of the body. Here, then, was a great question. Whence came that motor power? To set at rest that question, to solve that problem, has been the great labor of Dr. Marshall Hall's life.

The establishment of the reflex functions of this spinal cord; in short, the whole of the excito-motor physiology of the nervous system is the sole work of Dr. Marshall Hall. And not only this, but he has shown that there are in reality THREE great classes into which the various parts of the nervous system resolve themselves; the cerebral, or sentient voluntary; the true spinal, or excito-motor; and the ganglionic. This was the real unravelling of that perplexed and tangled web which none had before been able to accomplish. The true idea of a nervous centre could never be said to have existed before the time of Marshall Hall. The ideas of centric and eccentric action, of reflection, &c., so necessary to the comprehension of nerve-physiology, were unknown before the labors of this great discoverer. But these physiological discoveries were not mere barren facts. How rich a practical fund of therapeutical measures naturally follows the physiology and pathology of the excito-motor system, every well informed physician can testify. To departments of medical practice have gained incalculably. The success of Dr. Marshall Hall in the treatment of nervous diseases was almost entirely the result of a rigid application of his own physiological discoveries to their pathology and thera-

peutics. Obstetricians have found their art elevated more than any other branch of medicine. In the place of uncertain and empirical rules, there are now definite and scientific principles upon which to fall back, with the unhesitating assurance that they will stand in good stead. The most complicated of all physiological acts, viz : the act of parturition, has, by the aid of the excito-motor system, been unravelled and reduced to beautiful harmony, if not simplicity. In like manner, many of the diseases of pregnancy are explained and illuminated by the same physiological knowledge. Innumerable symptoms of other diseases are rendered intelligible and rational, which before were obscure and empirical. But to follow out the influence of Dr. Marshall Hall's discoveries through their numerous and important ramifications would be almost to write a volume on the principles of medicine. It is impossible to say when we shall cease to find some new and important application of his discoveries to the great art of healing.

We cannot pass by this period of Dr. Marshall Hall's life without remarking upon the disgraceful treatment he received from the Royal Society. The days of persecution had happily passed by, but the day of dull obstructiveness still remained. The Royal Society thought Dr. Hall's memoir "On the true Spinal Marrow and the Excito-Motor System of Nerves" unworthy of publication ! So much for the acumen of this Society. A very different verdict has, however, been given since by the great body of scientific men ; and the Society, which formerly received this great man's contribution coldly, now mourns the loss of its brightest and most illustrious member.

Since the promulgation of his researches upon the nervous system, Dr. Marshall Hall has been principally occupied with extending, applying, and developing them in every possible direction. The admirable success with which he indoctrinated the profession at large with his views must be attributed as well to his native lucidity as to their inherent truth.

During the time of Palmer's trial, it occurred to Dr. Hall to institute a physiological test for the recognition of styrchnia. As if to show the absolute correctness of his views, and how unlimited were the number and nature of the scrutinies they would bear, he found that a frog, immersed in water containing the $\frac{1}{500}$ part of a grain of styrchnia, would, in process of time, be thrown into tetanic convulsions. For the details of these experiments we must refer to *The Lancet* of last year. The physiological test was found to be far more delicate than the chemical. Here was an instance of sagacity and precision of thought which would have done credit to any man in the flower of his age.

The last and crowning effort of Dr. Marshall Hall in the cause of science and humanity has been his discovery of what is now universally known as the "Marshall Hall Method" of restoring asphyxiated persons. How completely and irrefragably he has proved the inutility and danger of the practices hitherto in vogue for the resuscitation of asphyxiated persons! Space prevents us from going into the theoretical details of Dr. Marshall Hall's method; but our columns have, for any time these last six months, contained overwhelming proofs of its *truth* and adaptation to practice. It is pleasing to find that this last labor of a great mind has been a labor of love, something added to the stock of human happiness, something taken away from the bitterness of human life. It is singular enough that in the very place where Marshall Hall has drawn his last breath, two cases have lately occurred illustrating the superiority of the "Marshall Hall Method" over the empirical rules of the Royal Humane Society. In one case of drowning the warm bath was administered; in another, the "Marshall Hall Method" was resorted to: in the first case death was the result; in the second, restoration to life. It is also remarkable that in this number of our journal should be recorded three more examples, illustrative of the successful application of the "Marshall Hall Method" of treatment. It is curious, too, that one of them should have occurred at Nottingham.

In the practice of his profession, Dr. Marshall Hall was very successful. He linked himself early and resolutely to a great subject, and rose into fame upon his development of it. He realized an ample fortune as the reward of a life of unremitting toil. We do not mean to imply that competency was hardly earned under such conditions. Such a man would have been less than happy in a different sphere. Labor was to his restless and indomitable spirit a necessity. Even now, when we are recording the death of this illustrious and lamented physician, there is a column in the press,—a recent effort of his prolific mind; and until within two months before his dissolution, the mental energies of this extraordinary man were engaged in preparing for publication, in *The Lancet*, a series of papers, entitled, "The Complete Physiology of the Nervous System."

It is somewhat remarkable that Dr. Marshall Hall never held the office of physician in a hospital in London. He was only physician to a dispensary for a short time. He lectured at the Aldersgate-street and Webb-street School of Medicine, and also at St. Thomas's Hospital Medical School. He was a candidate for the Professorship of Medicine at University College upon one occasion; but owing, it is believed, to some improper influ-

ences, matters assumed such an aspect as to induce Dr. Hall to retire from the field.

We have thus far considered Dr. Hall as a man of science. In other relations of life he was equally deserving of our highest respect. As a politician, he was liberal in the highest degree. He was a strictly moral man, and was deeply imbued with a sense of the obligation of a *practical* cultivation of religion. That which he thought right to do, he *did*, with unswerving honesty and courage. All subterfuge, trickery, quackery, and guile, were utterly foreign to his nature. So simple and childlike was he in disposition, as hardly to be able to imagine in others the guile which had no home in his own breast. He was a kind husband, a most indulgent father, and a faithful friend. He married, in 1829, Charlotte, second daughter of Valentine Green, Esq., of Normanton-le-Heath, Leicestershire. Mrs. Marshall Hall's maternal grandfather was M. P. for Shaftesbury, and son of Dr. Cromwell Mortimer, physician to the Prince of Wales, father of George III. Throughout the protracted illness of Dr. Marshall Hall, the assiduous, devoted, and unremitting attentions of an affectionate wife were probably never surpassed. This testimony is due from personal observation of the fact. The deceased has left one son, who has relinquished the profession for the rural life of a country gentleman.

We must now close our notice of one over whose memory we would fain linger. Melancholy as it is to say he *was* amongst us, our sorrow is stayed by the reflection that he did not live in vain. All that a grateful profession has to give to his memory will be given. We shall still think of him with affectionate respect as a Father in Medicine, but as a child in the purity and simplicity of his mind. Though no title has adorned the name of the great Marshall Hall, we who are left behind will esteem him as one who would have graced rather than have been graced by honors however exalted. The title, which he preferred beyond all others was that of the English physiologist.

The mortal remains of this distinguished man were, on Wednesday last, removed from Brighton to Nottingham, where, we believe, a post-mortem examination has been made by his brother-in law, Mr. Higginbottom, his nephew, Mr. Higginbottom, Jr., and Dr. Ransom, physician to the Nottingham General Hospital. It is believed that the death of Dr. Marshall Hall was caused by exhaustion, produced by a stricture of the oesophagus of many years' standing, accompanied latterly, it was considered by many eminent physicians, with malignant ulceration of the part. Dr. Alfred Hall, of the old Steyne, Brighton,

was one of the chief medical attendants of the deceased in his last illness. Sir Benjamin Brodie had long since pronounced the malady from which Dr. Marshall Hall was suffering to afford no hope of the application of any permanent remedy.

A word to our Subscribers.

In the July No., the seventh of the present volume, we sent bills to all who had not paid their subscriptions to the end of this year. Many responded promptly by sending their money, and to such we feel under renewed obligations. But, two more numbers will bring the year to a close, and there are many on our subscription list who still remain indebted not only for the present volume, but many of them for one, two, or three preceding volumes also. The number of our subscribers is abundantly sufficient, if they would pay promptly, to defray all the current expenses of publishing the *Journal*, and enable us to employ such help as would very much improve its contents. Hence it is as much for their interest as ours, to pay promptly for each current volume during the year of its publication.

We wish every delinquent subscriber would take the hint, and at once remit us by mail the amount due. If letters containing money are properly registered, we will cheerfully bear all the risk of losses by transmission.

Rush Medical College.

The prospects of a good class in this institution are fully equal to those of any former year.

The preliminary course for the present month commenced on Tuesday the 6th inst., and consists of clinical instruction in the Mercy Hospital every morning; clinics, in the College by Professors Brainard and Byford, on Wednesdays and Saturdays; and two lectures per day in the College during the remaining four days of the week. The Lectures embrace the following topics, viz: Histology, by Prof. Freer; Pathology of the Urine, by Prof. Johnson; Diseases of the Os and Convex Uteri, by Prof. Byford; and Physical Diagnosis, by Prof. Davis. If we add to these lectures and clinics abundant facilities for dissection, it will be apparent that our city offers

advantages to the medical student fully equal to those found elsewhere during the present month. Nor are these advantages unappreciated.

For, though but one week has elapsed since the commencement of the course, already the number of students in attendance is double that which attended the much advertised Summer Course of Clinical instruction in Detroit; and which was to mark "an era" in medical teaching; or, according to Dr. Pitcher, constitute the *first step* towards bringing back the Clinical instruction in America, to the Hippocratic method.

Medical Education.

We are glad to see that many of our exchanges are still discussing this trite topic. The *Virginia Medical Journal* is advocating a plan for uniting the two Medical Colleges in that state, adding one-third to the number of Professorships, and greatly extending the length of the college term. The same Journal also strongly advocates the doctrine, that each section of the country should educate its own physicians. Let the discussion go on, and we have full faith that correct principles will be evolved, and ultimately acted on.

Clinical Instruction.

Speaking of this subject in connection with Medical Colleges, the editor of the *Southern Journal of Medical and Physical Sciences*, in his September number, has the following paragraph:

"What are the opportunities for acquiring *Clinical instruction*, for, as lightly as some may speak of clinical lectures, they are essential to the making of the physician?"

"In this respect, the *New Orleans School of Medicine*, and *University of Michigan* are superior to all other schools."

Alluding to the same subject, the *Medical Independent* for October, published at Detroit, has the following:

"The Clinical course in the *University (of Michigan)*, established by the Regents at their spring meeting, commenced on the 26th of June, and closed on the 27th of August; consequently it had a duration of *two months*. The number of students in attendance was *nine*. Of these, seven remained

through the whole two months ; one, a graduate, left at the end of the first month ; and one, a novice, was admitted at the middle of the term."

Such is the Clinical Course which the editor of the *Southern Journal* calls "superior to all other schools."

Verily ! distance lends enchantment, &c.

Epidemic Cholera.

Although this fearful scourge has ceased to manifest itself in any part of our own country, yet it still lingers on the southern border of the continent, as the following paragraph, taken from a reliable source, will show :

Fearful Ravages of the Cholera in Central America.—The advices brought from Central America, by the Star of the West, are of a gloomy character. The Asiatic cholera is making sad havoc in Guattemala and San Salvador. The following is an account of its progress in Guattemala :

Hon. W. G. Venable, United States Minister resident to Guattemala, died at the capitol on the 22d, of cholera, which disease he contracted in a few days after he arrived in the country. His remains were interred in the Protestant burying ground. The funeral service of the Protestant Episcopal Church was read by the British Charge d' Affaires, at the grave. His funeral was attended by all the leading officials at Guattemala, and the Diplomatic and Consular representatives of the various foreign powers. Mr. Venable leaves a wife and six children in Tennessee.

The wife of the President of the Republic also fell a victim to the cholera. She died on the 17th of August. The ravages of this scourge throughout Guattemala have been most fearful. It first made its appearance at the capitol on the 8th of July last, and up to the 23d of August there had been 2,494 cases reported, and 1,039 deaths. The smaller towns in the interior have also suffered severely from the epidemic—indeed, the mortality seems to have been greater in several localities than in the capitol. In the town of Villa Nueva, with a population of less than 4,000, some 800 persons have died ; and in Amotitan, with a population of 12,000, it is reported that at least one-twelfth of its inhabitants have died of cholera.

The same account says of the epidemic in San Salvador :

The cholera still continues with unabated violence througho this Republic. Senor San Martin, ex-President of the Repu

lic, is among its victims. The number of deaths in the entire State presents a fearful bill of mortality. Up to the 1st of August, it is estimated that between eight and nine thousand persons have died of the disease. The official returns, however, put the number down at only two thousand three hundred and ninety-nine.

Hydrophobia.

The following extract in relation to this disease has been cut from some recent paper, and sent to us by a medical friend; and we cheerfully give it a place in the *Journal*, although, if we are not mistaken, the same facts were published several years ago in most of the medical journals then existing, both in Europe and America.

A cure for Hydrophobia.—We have received from a gentleman at Berlin the following important statement of the mode of cure practiced in Ukraine for the bite of a mad dog. It is translated from the *Berlin State Gazette* (No. 20) of the 14th of February, 1822, and does certainly seem entitled to the fullest consideration of all medical men. That the knowledge of this remedy may be extensively known, and further put to test by experience, we hope it will be copied into every journal throughout the country.

When Mr. Marochetti, an operator in the hospital at Moscow, was in the Ukarine in 1813, in one day fifteen persons applied to him for cure, having been bitten by a mad dog. Whilst he was preparing the remedies, a deputation of several old men made its appearance, to request him to allow a peasant to treat them, a man who for some years enjoyed a good reputation for his cures of hydrophobia, and of whose success Mr. Marochetti had already heard so much. He consented to their request under these conditions:—1. That he, Mr. Marochetti, should be present at everything done by the peasant. 2. In order that he might be fully convinced that the dog was really mad, he, Mr. M., should select one of the patients, who should only be treated according to the medical course usually held in estimation. A girl of six years old was chosen for this purpose. The peasant gave his fourteen patients a strong decoction of the ‘Summit’ and Fl. Genista Lutea tincturæ (about a pound and a half daily,) and examined twice a day under the tongue, where, he stated, *small knots*, containing the poison of the madness, must form themselves. As soon as these small knots actually appeared, and which Mr. Marochetti himself saw, they were

opened and cauterized with a red-hot needle ; after which the patient gargled with the decoction of the Genista. The result of this treatment was that all the fourteen (of whom only two, the last bitten, did not show these knots,) were dismissed perfectly cured at the end of six weeks, during which time they drank this decoction. But the little girl who had been treated according to the usual methods, was seized with hydrophobic symptoms on the seventh day, and was dead in eight hours after they first took place. The persons dismissed as cured were seen three years afterward by Mr. Marochetti, and they were all sound and well. Five years after this circumstance (in 1818) Mr. Marochetti had a new opportunity, in Podolia, of confirming this important discovery. The treatment of twenty-six persons who had been bitten by a mad dog was confided to him—nine were men, eleven women, and six children. He gave them at once a decoction of the Genista : and a diligent examination of their tongues gave the following result :—Five men, all the women, and three children had the small knots already mentioned—those bitten most, on the third day ; others on the fifth, seventh and ninth ; and one woman who had been bitten only very superficially, on the twenty-first day. The other seven, who showed no small knots, drank the decoction Genista six weeks, and all the patients were cured.

In consequence of these observations, Mr. Marochetti believes that the hydrophobic poison, after remaining a short time in the wound, fixed itself for a certain time under the tongue, at the opening of the ducts of the submaxillary glands, which are at each side of the tongue-string, and there forms those smaller knots, in which one may feel with a probe a fluctuating fluid, which is the hydrophobic poison. The usual time for their appearance seems to be between the third and ninth day after its bite ; and if they are not opened after the first twenty-four hours of their formation, the poison is re-absorbed by the body, or into the body, and the patient is lost beyond the power of cure. For this reason Mr. Marochetti recommends that such patients should be continued for six weeks, during which time they should take daily $1\frac{1}{2}$ lb. of the decoct. genist. (or four times a day the powder, 1 drach pro. dos.) If the knots do not appear in this time, no madness is to be apprehended ; but, as soon as they show themselves, they should be opened with a lancet, and then cauterized, and the patient should gargle assiduously with the above-mentioned decoction.

"We hasten," says the *Berlin Gazette*, "to communicate to our readers this important discovery (which we borrow from the 'Petersburg Miscellaneous Treatises in the Realm of Medical

Science for 1821,') which certainly deserves the full attention of all medical practitioners, and which, if confirmed by experience, may have the most beneficial results."

MISCELLANEOUS ITEMS.

Handsome Bequest.

A valuable addition has been made to the Geological Cabinet of Yale College, of all the geological drawings of the late Dr. Mantell, of England, the distinguished author of the *Wonders of Geology*. Dr. Mantell died in 1852, bequeathing these drawings to the College. They were forwarded from Europe by Dr. Mantell's son, and have arrived at New Haven.

Singular Case of Triplets.

Dr. A. S. McGregor, of Gasconade Ferry, Mo., in a letter to the editor of this journal, says, "On the 10th of August, 1856, Mrs. G—, of this County, was delivered of a still-born child. Twenty-one days after this, she gave birth to a second, and in the same length of time thereafter, to a third. The last two lived about six hours each. The mother is doing well, and is again pregnant.—*St. Louis Med. and Surg. Journal.*

Prof. Wittstein, a German Naturalist, has announced the discovery of Lactic Acid, heretofore considered of exclusive animal origin, in vegetables, especially in the peduncles of *Solanum dulcamara*, and in the liquid which dropped from freshly cut vine branches. It would seem the farther researches are carried, the fewer distinctions remain between vegetable and animal substances.—*Peninsular Jour. of Medicine.*

TO THE MEDICAL PROFESSION.

The subscribers would call the attention of physicians to the annexed list of Fluid Extracts, which we have been induced to prepare, from the difficulty of obtaining such preparations of a reliable character, and to obviate the great inconvenience of being dependent on distant manufacturers for articles of every day use by physicians.

By the process of percolation, carefully conducted, the crude material is completely exhausted of its medicinal virtues, and these, by subsequent evaporation, at a low temperature, are retained in their full original activity, and in a form highly concentrated, and exceedingly convenient for prescription.

We would respectfully invite physicians to make trial of the above, feeling confident that they will be found entirely reliable.

To those who prefer Tilden & Co.'s Extracts, we would say that we keep the usual assortment of their Solid and Fluid Extracts, and offer them at their prices.

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"	Coni,	"	"	"	"	"	"	"	"	"	"
"	Cimicifugae,	"	"	"	"	"	"	ounce	"	"	"
"	Cubebe, U. S.	"	"	"	"	"	"	2 scruples	"	"	"
"	Ergot,	"	"	"	"	"	"	$\frac{1}{2}$ a drachm	"	"	"
"	Galla,	"	"	"	"	"	"	$\frac{1}{2}$	"	"	"
"	Gentianæ,	"	"	"	"	"	"	$\frac{1}{2}$	"	"	"
"	Hyoscyami,	"	"	"	"	"	"	$\frac{1}{2}$	"	"	"
"	Lobelia,	"	"	"	"	"	"	"	"	"	"
"	Opii,	"	"	"	"	"	about 5	grains	"	"	"
"	Pareira Brava,	"	"	"	"	"	"	$\frac{1}{2}$ a drachm	"	"	"
"	Piperis Nig.,										
"	U. S.,	"	"	"	"	"	2	ounces	"	"	"
"	Pruni Virg,	"	"	"	"	"	$\frac{1}{2}$	a drachm	"	"	"
"	Rhei, U. S.,	"	"	"	"	"	$\frac{1}{2}$	"	"	"	"
"	" et Sennæ,	"	"	"	"	"	45 grs. Senna				
"							15 grs. Rhub.	"	"	"	"
"	Sanguinariae,	"	"	"	"	"	$\frac{1}{2}$	a drachm	"	"	"
"	Serpentariae,	"	"	"	"	"	$\frac{1}{2}$	"	"	"	"
"	Scutellarie,	"	"	"	"	"	"	"	"	"	"
"	Sarsaparilla,										
"	U. S.,	"	"	"	"	"	1	"	"	"	"
"	Sennæ, U. S.,	"	"	"	"	"	"	"	"	"	"
"	" et Spigeliae,										
"	U. S.,	"	"	"	"	"	30 grs. Pink-root,				
"	Stillingiae,	"	"	"	"	"	15 grs. Senna,	"	"	"	"
"	Taraxaci,	"	"	"	"	"	$\frac{1}{2}$	a drachm	"	"	"
"	Valerianæ, U. S.,	"	"	"	"	"	$\frac{1}{2}$	"	"	"	"

Sargent & Ilsley's Solution of Chloride of Zinc,

For Purifying Sick Chambers, Sinks, Chamber Vessels, Vaults, Cellars, and for preserving Corpses, Preventing Moths, Exterminating Bugs, &c.

To obtain a substance harmless in itself, and free from smell, but possessed of the property of destroying all other smells, particularly such as are often given or injurious to health, has long occupied the attention of scientific men. It has been found that Chloride of Zinc possesses this power in a high degree, and is also safe, economical and convenient.

It has received the sanction of the highest medical authority, and been very extensively introduced into the hospitals and public institutions of Europe and this country.

Our solution is of uniform strength, containing 35 per cent. of the dry chloride, and for most purposes should be diluted with twenty times its bulk of water. It is the cheapest, most effectual and convenient disinfectant known.

Its application is perfectly safe, both to persons and property; it is also free from the noxious and disagreeable odor of the chloride of lime, and the objections pertaining to the various disinfectants in common use. Full directions accompany each bottle.

Prepared by SARGENT & ILSLEY, Druggists, 140 Lake street, Chicago.

MEDICAL COLLEGE OF OHIO

SESSION OF 1857-8.

THE THIRTY-EIGHTH ANNUAL COURSE OF LECTURES IN THIS
Institution will commence on the 15th of October, and continue until the
1st of March.

FACULTY.

- L. M. LAWSON, M.D., *Prof. of Practice of Med. and Clin. Med.*
 JESSE P. JUDKINS, M.D., *Prof. of Anatomy.*
 GEORGE C. BLACKMAN, M.D., *Prof. of Surgery and Clin. Surg.*
 GEORGE MENDENHALL, M.D., *Prof. of Obst. and Diseases of Women and Child.*
 JAMES GRAHAM, M.D., *Prof. of Materia Medica and Therap.*
 C. G. COMEGYS, M.D., *Prof. of Institutes of Medicine.*
 H. E. FOOTE, M.D., *Prof. of Chemistry.*
 THOMAS WOOD, M.D., *Prof. of Microscopic and Surgical Anatomy.*
 JOHN A. MURPHY, M.D., *Adjunct Prof. of Pract. of Medicine.*
 B. F. RICHARDSON, M.D., *Adjunct Prof. of Obst.*
 WM. CLENDENIN, M.D., *Demonstrator of Anatomy.*
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CLINICAL INSTRUCTION.

The Faculty are determined to devote much of their time and attention to Clinical instruction. The patients of the Commercial Hospital, St. John's Hotel for Invalids and City Dispensary (which are under the exclusive control of the Med. Col. of Ohio), will be examined, prescribed for or operated upon daily in presence of the class.

The Anatomical Rooms will be opened on the 1st of October. Material for dissection will be cheap and abundant.

FEES.

Professor's Ticket,	\$80 00	Matriculation Ticket (paid once),	\$5 00
Dissecting Ticket,	6 00		
Hospital Ticket,	5 00	Graduation Fee,	25 00

At the close of the Session, the Faculty will elect from the class seven House Physicians, to reside in the Hospital and Dispensary for one year.

For further information, call at the College on Sixth Street, between Vine and Race, Cincinnati; or address,

GEORGE MENDENHALL, M.D.,

Registrar.

JAMES GRAHAM, Dean,

57 Seventh St.

STARLING MEDICAL COLLEGE.

SESSION OF 1857-58.

THE REGULAR SESSION OF STARLING MEDICAL COLLEGE WILL begin on Wednesday, the 14th day of October, 1857, and continue for five full months.

FACULTY.

- S. M. SMITH, M. D.,
Professor of Theory and Practice, and Dean.
FRANCIS CARTER, M. D.,
Professor of Obstetrics and Diseases of Women and Children.
J. W. HAMILTON, M. D.,
Professor of Surgery.
JOHN DAWSON, M. D.,
Professor of General and Special Anatomy and Physiology.
S. LOVING, M. D.,
Prof. of Materia Medica, Therapeutics and Medical Jurisprudence.
THEO. G. WORMLEY, M. D.,
Professor of Chemistry.
R. N. BARR, M. D.,
Demonstrator of Anatomy.

FEES.

Tickets of all the Professors.....	\$60.00
Matriculation Ticket.....	3.00
Graduation Fee.....	20.00
Ticket for the privilege of the Dissecting Room, including the services of the Demonstrator.....	5.00
Subjects for dissection in the building, furnished at a moderate expense, on application to the Demonstrator of Anatomy, and in no other way.	

Inquiries and requests being sometimes made for indulgence in time, we propose to allow, in such cases, that a judgment note for \$65, with interest and approved security, payable in one year, may be taken. But our rule is payment within the first three weeks of the session.

EXPENSES FOR A SINGLE SESSION.

Fees, including the Dissecting Ticket.....	\$68.00
Boarding, including lights and fuel, from \$2 to \$3 per week, for twenty weeks.....	\$40.00 to 60.00
	\$108.00 to 128.00

There are three extensive Bookstores in Columbus, at which Medical works in great variety are sold at very low rates. Surgical, Obstetrical and Dissecting Instruments are readily obtained.

All letters of inquiry will receive prompt attention, if addressed to any member of the Faculty, or to

S. M. SMITH, De